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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,421	06/24/2003	David S. Miller	020579	4323

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QUALCOMM INCORPORATED
5775 MOREHOUSE DR.
SAN DIEGO, CA 92121

EXAMINER	
SOL, ANTHONY M	
ART UNIT	PAPER NUMBER
2616	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	04/02/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 04/02/2007.

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us-docketing@qualcomm.com
kascanla@qualcomm.com
t_ssadik@qualcomm.com

Office Action Summary	Application No.	Applicant(s)	
	10/603,421	MILLER ET AL.	
	Examiner	Art Unit	
	Anthony Sol	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 June 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3, 5-7, 9-14, 16, 18, 19, 21-30 and 32-34 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 7,151,944 B2 ("Hashem").

Regarding claim 1,

Hashem discloses receiving a first pilot signal at a plurality of terminals (col. 10, lines 56-65, *pilot bits are transmitted*)

Hashem further discloses deriving at least one transmit timing characteristic from the received first pilot signal, wherein deriving is performed within each of the plurality of terminals (col. 10, lines 56-65, *divided into 15 slots*).

Hashem still further discloses transmitting, at an assigned time, a pilot signal from each of the plurality of terminals in accordance with the derived at least one transmit timing characteristic (col. 8, lines 37-41, *base station 1 receives a number of signal components displaced in time from a subscriber terminal*).

Hashem even still further discloses receiving a control signal, the content of the control signal providing instructions to adjust the at least one transmit timing

characteristic and adjusting, responsive to the control signal, the at least one transmit timing characteristic (col. 13, lines 27-34, *the time alignment command is assembled... transmitted from the base station to the mobile... received as a sequence at the mobile unit, and decoded to form a command that is used to adjust the timing of the mobile's transmissions*).

3. Regarding claims 3 and 29,

Hashem discloses transmitting a first pilot signal from a ground station in the forward link direction (col. 10, lines 56-65, *pilot bits are transmitted*).

Hashem further discloses receiving the first pilot signal at a terminal, and recovering carrier phase and modulation chip clock timing therein (col. 11, lines 1-31, particularly lines 3-5, *A sequence of 15 Time Alignment bits are sent over a 150 millisecond interval to forma a coded Time Alignment Command (TAC)*).

Hashem still further discloses transmitting a second pilot signal from the terminal in the reverse link direction (col. 8, lines 37-41, *base station 1 receives a number of signal components displaced in time from a subscriber terminal*).

Hashem still further discloses comparing, at the ground station, the second pilot signal to a reverse link reference signal (col. 9, lines 23-26, *The timing difference between a particular mobile terminal's strongest received signal component and the reference time can then be calculated*).

Hashem still further discloses transmitting, in the forward link direction, a control signal, the content of the control signal based at least in part on the comparison

between the second pilot signal and the reverse link reference signal (col. 9, lines 26-28, *The subscriber terminal can then be instructed to adjust its timing by the required difference to bring its transmissions into alignment*).

Hashem still further discloses adjusting, responsive to the control signal, at least one operational parameter of the terminal (col. 13, lines 27-34, *the time alignment command is assembled... transmitted from the base station to the mobile... received as a sequence at the mobile unit, and decoded to form a command that is used to adjust the timing of the mobile's transmissions*).

4. Regarding claim 5,

Hashem discloses that spreading codes used within a CDMA cell are orthogonal to each other (col. 6, lines 53-57).

5. Regarding claims 6, 7, 18 and 19,

Hashem discloses that tracking commands, making use of the setting of the eighth bit to choose between ¼ and 1/8 chip (col. 13, lines 4-6; col. 15, lines 26-29).

6. Regarding claims 9, 12, 21, 22, 25, 32 and 33,

Hashem discloses that the transmission timing alignment function 40 is coupled to the local clock function 42 and 41 and adds or subtracts timing offsets to the timing reference signal to alter the transmission timing (col. 16, lines 5-8).

7. Regarding claims 10, 11, 13, 14, 23, 24, 26 and 27,

Hashem discloses a range of changes in timing spanning from $1/8^{th}$ chip to 16 microseconds (col. 16, lines 15-18).

8. Regarding claim 28,

Hashem discloses a CDMA coder 26 which encodes traffic and signaling from the subscriber terminal for transmission to the base station 1 (col. 15, lines 56-57). Hashem further discloses an antenna 20 coupled to a duplexer 21 which is coupled to a receiving chain (RX) comprising a radio frequency conversion stage 22, and a RAKE receiver 23, to recover traffic and control signaling from the base station 1 (col. 15, lines 47-53).

9. Regarding claim 34,

Hashem shows in fig. 10 memory 44.

10. Regarding claim 16,

Hashem discloses means for receiving a first pilot signal (col. 10, lines 56-65, *pilot bits are transmitted*).

Hashem further discloses means for recovering carrier phase and modulation chip clock timing from the first pilot signal (col. 11, lines 1-31, particularly lines 3-5, *A sequence of 15 Time Alignment bits are sent over a 150 millisecond interval to forma a coded Time Alignment Command (TAC)*).

Hashem still further discloses means for transmitting a second pilot signal from the terminal (col. 8, lines 37-41, *base station 1 receives a number of signal components displaced in time from a subscriber terminal*).

Hashem still further discloses means for receiving a control signal (col. 9, lines 26-28, *The subscriber terminal can then be instructed to adjust its timing by the required difference to bring its transmissions into alignment*).

Hashem still further discloses means for transmitting an orthogonal CDMA traffic signal (col. 6, lines 53-57, *Hashem discloses that spreading codes used within a CDMA cell are orthogonal to each other*), the orthogonal CDMA traffic signal having a first timing characteristic (col. 9, lines 26-28, *The subscriber terminal can then be instructed to adjust its timing by the required difference to bring its transmissions into alignment*).

Hashem still further discloses means for adjusting the first timing characteristic in response to said control signal (col. 13, lines 27-34, *the time alignment command is assembled... transmitted from the base station to the mobile... received as a sequence at the mobile unit, and decoded to form a command that is used to adjust the timing of the mobile's transmissions*).

11. Regarding claim 30,

Hashem shows in fig. 10 a processor 40, a memory 44 of stored CDMA signal transmit timing characteristic control information coupled to the processor, and a machine accessible medium 43, coupled to the processor, having

instructions encoded therein, the instructions, when executed by the processor, cause the terminal device to receive a first pilot signal (col. 10, lines 56-65, *pilot bits are transmitted*).

Hashem further discloses recovering carrier phase and modulation chip clock timing from the first pilot signal (col. 11, lines 1-31, particularly lines 3-5, *A sequence of 15 Time Alignment bits are sent over a 150 millisecond interval to forma a coded Time Alignment Command (TAC)*). .

Hashem still further discloses transmitting a second pilot signal (col. 8, lines 37-41, *base station 1 receives a number of signal components displaced in time from a subscriber terminal*).

Hashem still further discloses receiving a control signal (col. 9, lines 26-28, *The subscriber terminal can then be instructed to adjust its timing by the required difference to bring its transmissions into alignment*).

Hashem still further discloses transmitting an orthogonal CDMA traffic signal (col. 6, lines 53-57, *Hashem discloses that spreading codes used within a CDMA cell are orthogonal to each other*) having a first timing characteristic (col. 9, lines 26-28, *The subscriber terminal can then be instructed to adjust its timing by the required difference to bring its transmissions into alignment*). .

Hashem still further discloses adjusting the first timing characteristic in response to said control signal (col. 13, lines 27-34, *the time alignment command is assembled... transmitted from the base station to the mobile... received as a sequence at the mobile unit, and decoded to form a command that is used to adjust the timing of the mobile's*

transmissions).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Hashem in view of Pub. No. US 2005/0243005 A1 ("Rafi").

Regarding claim 2,

Hashem discloses a reverse uplink receiver (col. 16, line 62 – col. 17, line 3).

Hashem does not disclose that the beam width is approximately 0.5°.

Rafi discloses a beam width in the range of 0.5-0.7 degrees (para. 106)

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the reverse uplink receiver in a synchronous CDMA system of Hashem to provide a beam width in the range of 0.5-0.7 degrees as taught by Rafi. One skilled in the art would have been motivated to make the combination since such a beam width makes the system very sensible to azimuth movements and fluctuations (Rafi, para. 106).

14. Claims 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable

over U.S. Hashem in view of U.S. Patent No. 5,617,410 ("Matsumoto").

Regarding claims 4 and 17,

Hashem does not discloses transferring signals through a geosynchronous satellite disposed in forward and reverse links.

Matsumoto discloses that downward and upward signals may be propagated through at least one communication satellite (col. 7, lines 33-36),

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the synchronous CDMA system of Hashem to include a communication satellite to propagate signals through as taught by Matsumoto. One skilled in the art would have been motivated to make the combination in order to communicate with ships as is well known in the art.

15. Claims 8, 20 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Hashem in view of Rafi.

Regarding claims 8, 20 and 31,

Hashem discloses a reverse uplink receiver (col. 16, line 62 – col. 17, line 3).

Hashem does not disclose that the beam width is approximately 0.5°.

Rafi discloses a beam width in the range of 0.5-0.7 degrees (para. 106)

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the reverse uplink receiver in a synchronous CDMA system of Hashem to provide a beam width in the range of 0.5-0.7 degrees as

taught by Rafi. One skilled in the art would have been motivated to make the combination since such a beam width makes the system very sensible to azimuth movements and fluctuations (Rafi, para. 106).

16. Claims 15 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Hashem in view of U.S. Patent No. 6,956,895 B2 ("Vihriala").

Regarding claims 15 and 35,

Hashem does not disclose that the control signal directs the terminal to adjust its transmission frequency.

Vihriala discloses a method of compensating for frequency offset (col. 3 lines 4-43, see in particular col. 3, lines 26-28).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the synchronous CDMA system of Hashem to include a capability to compensate for frequency offsets as taught by Vihriala. One skilled in the art would have been motivated to make the combination since there will be a frequency error due to the Doppler effect in the received signal (Vihriala, col. 2, lines 35-45).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Jocomb-Hood (US2006/0240767A1) teaches geosynchronous satellite constellation.

Walsh (US2004/0147222A1) teaches efficient spectrum utilization by communications satellites.

Dogan (US6215983B1) teaches complex phase equalization for use in a communication system.

Monte (US6101385) teaches satellite communication service with non-congruent sub-beam coverage.

Dent (US6823170B1) teaches satellite communication system using multiple earth stations.

Dent (US6542716B1) teaches position registration for cellular satellite communication systems.

Lee (US6956829B2) teaches measuring propagation delay in an NB-TDD CDMA mobile communication system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Sol whose telephone number is (571) 272-5949. The examiner can normally be reached on M-F 7:30am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HASSAN KIZOU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

AMS

3/26/2007